Inventory & Monitoring Program

National Park Service
U.S. Department of the Interior

I&M Data Management News **July 2003 – Sept 2003**

Current data management activities, products, standards and meetings/training for the NPS Inventory and Monitoring Program.

General Information and Announcements

'New' Network Data Managers

Rob Daley (Greater Yellowstone NW)
Rob is a native of central Idaho and started working with the Forest Service in 1984. He earned a Bachelor of Science degree in Geography from the University of Idaho in 1995 and served as GIS Program Manager for the Sawtooth Forest from 1995-2003. His professional interests include further developing RDBMS skills and providing public access to natural resource data and information via the Internet. He is excited to contribute to the NPS I&M Program and the Greater Yellowstone Network. His wife and two daughters join him in Bozeman.

Patrick Flaherty (Appalachian Highlands NW)
Patrick is fresh in from California with a B.S in Forestry from Clemson, and a Masters in Geography from Wyoming. He likes to backcountry ski (telemark), play guitar and sing folk songs, and bird watch. He worked in YELL, PINN and now BIRI for the Appalachian Highlands network. He will present two GIS applications at Spatial Odyssey in Orlando and hopes to continue with useful products for resource managers.

Brent Frakes (Rocky Mountain NW)
Brent Frakes, formerly Data Manager with the Heartland Network, now is Data Manager for the Rocky Mountain Network.

Whitney Granger (Gulf Coast NW)
Whitney Granger is the new Data Manager for the Gulf Coast Network.

Nathan Piekielek (Eastern Rivers and Mountains NW)
Nathan has B.S. in Geography (Geographical Information Sciences option), from the Pennsylvania State University and a M.S. in Conservation Ecology and Sustainable Development from the University of Georgia's Institute of Ecology. His thesis research was part of an EPA STAR Watersheds and Waterways integrated science project and used mixed methods to explore homeowner preference, values and landscape maintenance behavior in Peachtree City, Georgia. He has had a diverse set of practical natural resource related experiences including performing Indiana Bat fieldwork, working on an audit of the Pennsylvania Natural Diversity

Inventory, living and working for the Montana Nature Conservancy at their Pine Butte Ranch and Swamp Preserve, and aiding in the construction of a multi-layered, geospatial continental soils database. Outdoor recreational endeavors occupy most of his time away from the office including cycling, x-country skiing, boating and the occasional rock climbing adventure.

Heidi Sosinski (Southern Plains NW)
Hi everyone! I have had the pleasure of working for the National Park Service since 1996. Like many people, I started out in a seasonal position. For two summers, I worked seasonally at Morristown National Historical Park. At the time, I was studying for a BS in natural resources management at Rutgers University. After graduating in 1998, Morristown hired me as a full-time biological science. This is where I first started learning GIS. Three and a half years later, I accepted a position with the Service wide Intake Trainee Program. During the 2-year program, I was a natural resources specialist at Great Sand Dunes National Monument and Preserve. This gave me the opportunity to further my GIS and data management skills through training and developmental assignments. I am now coming to the Southern Plains I & M Network as a recent graduate. I am looking forward to getting things rolling here for SOPN and working with all of you.

Christina Wright (Southeast Coast NW)
Christina Wright, formerly the Data Manager for the National Capital Region Network, now is the Data Manager for the Southeast Coast Network.

New WASO I&M Cooperators

Alison Loar – NPSpecies Data Manager
Alison Loar is the new NPSpecies Data Manager. Alison is a Colorado State University Research Associate and will be managing data and providing technical assistance to the field in support of the Biological Inventories and NPSpecies project. She has a B.S. in Wildlife Biology and her professional experience includes field work on Mexican Spotted Owls with the U.S. Forest Service and extensive technical database work over the past 9 years as an Information Manager and Database Administrator for the Colorado Natural Heritage Program. She is well versed in relational and multi-valued database management, data flow, data reconciliation, ArcView, Oracle database, MS Access, Dbase and Advanced Revolation technologies. Alison will soon be taking over from Simon most of the data flow processes to populate NPSpecies. Future guidance will be communicated as the transition takes place.

Job Announcements
The Northern Great Plains Network posted their Data Manager position on September 26. For more information, contact Network Coordinator Dan Licht (Dan_Licht@nps.gov).

Calls for Information: Data Manager Background and Skills, Data Management Calendar, Metadata Training Opportunities
The I&M Data Manager Directory now is powered by an Access database of contact information. Please review your info at http://science.nature.nps.gov/im/datamgmt/dmdir.cfm. Please report corrections to Lisa Nelson (Lisa_L_Nelson@nps.gov). Also, the Data Manager's Directory contains links to Background and Skills and, optionally, data manager photos. If you would like to share your background and skills and/or a photo, send it to Lisa Nelson.

The Data Management Calendar is outdated. Please submit calendar items to Lisa Nelson or Debbie Angell (Deborah_Angell@nps.gov).

I&M received a metadata training grant from FGDC to support metadata training sessions in 2004. If your network or parks would like customized metadata training, please contact Lisa Nelson (Lisa_L_Nelson@nps.gov) for more information.

Data Management Workgroups
Several workgroups were established at the Annual Data Manager's Meeting in May. These workgroups are in various stages of organization. Contact the workgroup coordinators for more information.

NPSpecies Needs Assessment - Margaret Beer, Coordinator
Goals: Assess immediate needs of NPSpecies by actively involving natural resource specialists; emphasizing residency and abundance elements; prioritize other needs for the application; plan, coordinate potential needs assessment workshop for Fall/Winter - communicate specific summary of results

Data Management Plan Template Revisions - Lisa Nelson, Coordinator
Goals: Revise current template/recommendations for data management plans: determine general scope of data management plans (purpose/intent/audience); revise the template to create a modular, living document (consider checklist approach); devise core text/boilerplate if plan is used as a network/regional umbrella; coordinate approach with requirements of monitoring phase reports; generalize HW/SW resources section and include specific, unique resources; reference overall/LAN-level security plan while detailing customized techniques where appropriate; living document concept implies change management; WASO to provide boilerplate on program-wide applications, overall goals, general documentation

Contracting Specifications - Brian Witcher and Craig Palmer, Coordinators
Goals: Devise recommendations; basic deliverables and database specifications to encourage similar product content and format; legal issues and procedural concerns with CESUs and CAs

Data Manager's Desk Reference - Brent Frakes, Coordinator
Goals: Determine content and format for Desk Reference; revise the overall Handbook draft and the I&M Data Manager's Handbook (= the Desk Reference 'organizer'?); include draft specification recommendations; contracting specs included; include RMPP concept; folder structure: dissemination tool structure and local (project /nw) structures; code library

Database Template – Informal
Improve understanding and utilization of complete and distribute Buffet of Fields applications; continue efforts to identify and document core elements esp. in the protocol context; use ListServ to get feedback on coding issues; WASO will review data model components; create web page for code repository/examples; emphasize flexibility of model; WASO to do better publicity; strive to get example protocols posted ASAP

NPSpecies Web Site Revisions
The NPSpecies web site has been reformatted and reorganized. Please check it out if you haven't visited it lately. http://science.nature.nps.gov/im/apps/npspp

NPSpecies QA
Many networks are conducting QA on NPSpecies data. See the Quality Assurance link on the NPSpecies web site for guidance, tools and workshop information.

NPSpecies Point-of-Contacts
Formal designation of NPSpecies Point-of-Contacts (POCs) is in progress. POCs will be responsible for working with park staff and the service-wide office to ensure the quality, integrity and appropriate access of NPSpecies data. Guidance and tools designed specifically for POC's are in development. See the Point-of-Contact link on the NPSpecies web site for POC designations and additional information as it becomes available.

Network Codes Spreadsheet and Database
An Excel spreadsheet and Access database of I&M Network information are available on the I&M Program website. The spreadsheet contains the 4-character network codes, names and first funding year information. The Access (XP) database contains lookup tables for networks and their parks. Please notify Lisa Nelson of any updates to the park list for your network.

Calendaring Software for Network Web Sites
The Southwest Alaska Network (SWAN) purchased a calendar authoring tool for use by all I&M networks and prototypes. GeoCalendar is a custom tag library for ColdFusion that allows web authors to embed interactive calendars in their pages. The tag library contains calendar administration utilities as well. GeoCalendar is available on the network server to allow network web authors to use it.

Please note the use of the CALENDAR_ID attribute in the CF_CALENDAR tag. This allows calendar data from multiple networks to be stored in the same database. Please use this element to separate calendars for different networks.
Currently assigned CALENDAR_ID values:

SWAN: CALENDAR_ID = 1
ARCN: CALENDAR_ID = 2
CAKN: CALENDAR_ID = 3
SEAN: CALENDAR_ID = 4
SECN: CALENDAR_ID = 5
AKRO: CALENDAR_ID = 901

Here is an example page. The GeoCalendar user's guide and help documentation are available.

Network and Prototype Intranet Web Sites
Intranet-only content for networks and prototypes may be posted to the I&M Intranet site (http://www1.nrintra.nps.gov/im/). Dreamweaver templates are available for the site (but are not mandatory). Please contact Lisa Nelson for more information.

Data Management Applications

NatureBib Tutorial Available On-line
A tutorial to "read" common workforms is now available on the Natural Resource Bibliography homepage. The tutorial uses Macromedia Flash and audio to point out the information needed to fill out the NatureBib workforms. Users can view a book, journal, map, report and other documents. The goal is to speed up the cataloging process and reduce frustration by giving the user an aid in locating the data for the required (and some not required) fields. Website:
http://science.nature.nps.gov/im/apps/nrbib/index.htm
Contact: Wendy Schumacher (wendy_schumacher@nps.gov)

Latest NatureBib Version
NatureBib Desktop users: Please be sure to use the latest version of NatureBib in Access (v2.1 released 6/30/03). The application is available on the webpage (http://science.nature.nps.gov/im/apps/nrbib/index.htm) and each release contains new features and functions. Using the latest version of NatureBib ensures that the files go to the top of the queue for uploading to the Master Oracle database. The deadline for submitting ProCite and Access 97 files is February 28, 2004.

New Version of NPSpecies (v2.1)
Version 2.1 of the NPSpecies desktop application is now available. See the Desktop Application link at the NPSpecies web site to download a copy. http://science.nature.nps.gov/im/apps/npspp

If you are unable to download the desktop application file, send an email to simon_kingston@partner.nps.gov with the words "NPSpecies CD Request" as the subject and your mailing address in the body of the email.

Version 2.1 includes additional tools and functionality to conduct efficient and effective Quality Assurance reviews. Exercises to learn the new functionality are available under the Quality Assurance link of the NPSpecies web site.

Natural Resource Database Template (NRDT): Status Report
Chris recently moved over from the Dataset Catalog to be the full-time developer on the NRDT project. He is excited to be involved with the NRDT because it brings together his backgrounds in application development and plant ecology. He also is looking forward to working with data managers to develop databases and technologies that will facilitate the collection of natural resource data service wide.

Here's a brief update on the NRDT project:

1. Activities To Date-
    - Development of the NRDT to Phase II* stage (thanks to Judy Daniels!)

2. Recent and Ongoing Activities-
    - Review of the Phase II* structure
    - Development of extended modular table/relationship structure
    - Support and development of natural resource databases using the Phase II standard
    - Design NRDT architecture to integrate with ESRI geodatabases.
    - Research into PDAs/handheld computers for use with the NRDT

3. Near Term Goals-
    - Incorporation of Database Specifications for I&M Data (Revised Draft Version 10-30-2002)
    - Implementation of extended modular table/relationship structure

4. Long Term Goals-
    - Implementation of Phase III* (switchboard, data range-checking, database outputs etc.)
    - Development of protocols databases to accompany sampling protocols
    - Posting of protocols databases to the Protocol Database Clearinghouse

(*For more information on the NRDT including an example of the NRDT core database, Phase 2 documentation and data dictionary, and an example database and protocol for land bird monitoring visit the NRDT webpage.)

Solicitation for Example Template Databases:
Chris needs a better idea of who is using NRDT-structured databases. Please contact him if you have been using or are developing a NRDT format database for inventory and monitoring purposes. He will post some database examples on the NRDT webpage and begin working with data managers and resource specialists to develop databases for existing protocols and for protocols-to-be. For more information or user support on the NRDT, please contact Chris Dietrich at 970.225.3587 or at mailto:Chris_Dietrich@partner.nps.gov.

Upcoming Release: Version 2003.2 of Dataset Catalog
A new version of Dataset Catalog will be released November 1, 2003. This version includes updated Help Documentation, bug fixes, network code linking capability and updated default bounding rectangles for parks and networks. Contact: Willene Hendon (Willene_Hendon@partner.nps.gov)

Upcoming Release: On-line NR/GIS Metadata Application
The first release of the NR/GIS Metadata application will occur in Fall of 2003. The initial release will allow import and export of metadata records, creation and editing of minimally compliant (Dataset Catalog-format) metadata records, robust metadata search capability and automated posting of non-sensitive records to the NPSFocus Digital Library and Research Station. A detailed user needs assessment for enhancements to NR/GIS Metadata is planned for January 2004. Contact: Lisa Nelson (Lisa_L_Nelson@nps.gov)

Enhancements to NR FTP Data Server Planned (FY2004)
The current Natural Resource FTP data service (http://science.nature.nps.gov/nrftp) will be enhanced in early FY2004. Planned development includes streamlining data and metadata delivery to public (non-NPS) users, enhanced search capability, expanded storage folder hierarchies and smoother integration with service-wide search engines (e.g., NPSFocus). These modifications will facilitate the transfer of the existing GIS Clearinghouse to the NR FTP server.

SMMS Licensing Agreement
Bob Truitt of the Klamath Network helped negotiate an arrangement for NPS to use USGS' enterprise license agreement for the Spatial Metadata Management Software (SMMS) application. SMMS handles both spatial and NBII Biological Profile metadata. Under the license agreement, NPS can purchase copies of SMMS for $480 per license. Negotiations are underway to extend this agreement to the new version of SMMS planned for release later this year.

Be aware of the following procedures when ordering SMMS from the license agreement:

Place credit card orders directly to Erica Patton at Intergraph: 888.779.3824

Fax a copy of the Purchase Agreement Voucher document to Erica Patton (fax: 256.730.1163). The voucher mentions the SMMS for GeoMedia product, but the negotiated agreement covers the stand-alone version of SMMS as well.

Intergraph will charge a $5 shipping and handling fee for each SMMS disk.

Intergraph needs both the shipping address and the installation address for their records.

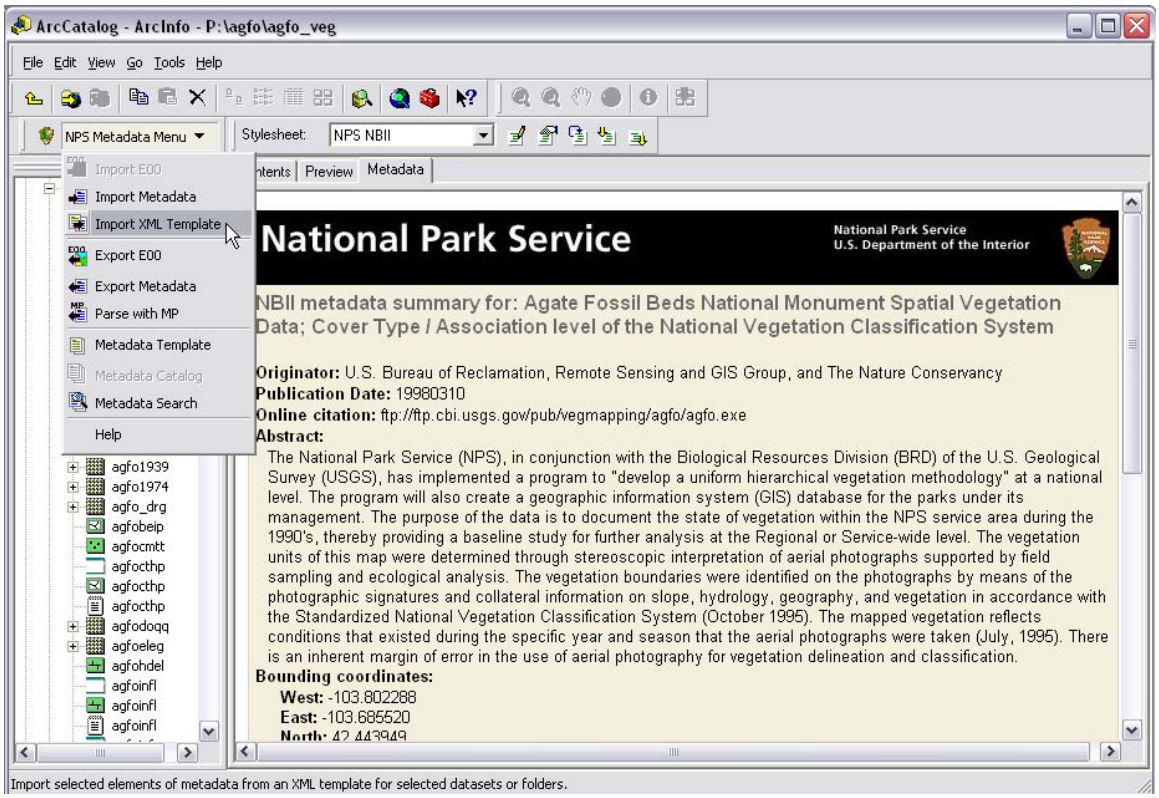
GIS and Mapping

Draft Data Model for Natural Resource Geodatabases
Joe Gregson, the Natural Resource GIS Coordinator, is collaborating with Lands Program and various park GIS staff on a draft data model for natural resource geodatabases. The draft model incorporates links to natural resource and service-wide feature datasets. The model will support the planned development of three feature datasets for the National Map prototype project: Boundaries, Transportation and Geographic Names (GNIS). For more information on the draft data model or the National Map project, contact Joe Gregson.

Data Management Standards and Protocols

Update to NPS Metadata Tools Arc8 Extension
The Midwest Region GIS Technical Support Center has released a new version of the NPS Metadata Tools ArcGIS Extension with a host of significant changes. In general, the extension is designed to help with managing metadata within ArcCatalog. Specifically, the extension provides tools for batch importing, exporting, and parsing FGDC compliant metadata. The various improvements in the latest version include: a tool to import specific pieces of metadata from a template, creation of extensive help files and context-sensitive help, an improved installation tool, and the ability to use the NBII metadata profile within ArcCatalog. The extension is now more NBII metadata friendly through the creation of several XML stylesheets to view metadata within ArcCatalog, the ability to use a configuration file with USGS's metadata parser (MP) to validate and parse NBII metadata, and thorough testing to ensure that NBII metadata is retained when imported in ArcCatalog.

Here is screen capture of ArcCatalog displaying NBII metadata with the extension's NBII stylesheet:



For more information and to download the extension, see:
http://science.nature.nps.gov/im/units/mwr/gis

Pilot Project for Document Imaging Services
In September 2003, WASO staff and data managers from the Southwest Alaska and Rocky Mountain Networks participated in a series of conference calls with NPSFocus staff to determine the feasibility of a collaborative pilot project designed to provide on-line delivery, searching and referencing of imaged documents. Specific capabilities discussed included integration with NatureBib, customized searchability, document scanning services and uploading strategies.

A preliminary needs assessment survey is in development and technical feasibility evaluations are underway. The needs survey will be distributed to the I&M data management community in October. Contacts: Lisa Nelson, Wendy Schumacher, Dorothy Mortenson, Brent Frakes.

Revised Folder Structure for Park, Network, Program and Regional Data
The recommended folder structure has been revised. The revised structure will be the basis for the NR FTP server folder hierarchy that will support the enhanced NR FTP application. The revised draft is available at: http://science.nature.nps.gov/im/datamgmt/docs/nrftpstr.doc

Network and Prototype Data Management Activities

Heartland Network (HTLN) Phase II Indicator Selection Database
The Heartland Network developed an AccessXP database application to facilitate vital signs indicator selection for Phase II reporting. The application allows reviews to view and rank

indicators and suggest measures for vital signs monitoring. Contact: Brent Frakes (Brent_Frakes@nps.gov)

Central Alaska Network (CAKN) experiments with handheld computers
The CAKN experimented this summer with field data collection on PDAs. Given the harsh realities of field work in Alaska (10-14 days in extremely remote areas and unpredictable weather) a simple solution using black & white Palm OS PDAs running on common AAA batteries was selected. The black & white screen ensured easy viewing in the constant summer sun as well as longer battery life than the energy sucking color screens. The Palm OS was chosen since it can run the Pendragon Forms handheld database software which seamlessly synchronizes with Access desktop databases. Additionally, development of data collection forms for the handheld is made easy with Pendragon Forms which allows you to develop directly off your existing Access database. There's even a built-in function for collecting GPS coordinates with a single tap of the screen. Field data entry is controlled with combo lists and formats that reduce the variability in recorded data. A 64MB secure digital card was used to back up the data while in the field. Upon completion of field work, the PDAs are synched with the desktop database eliminating the manual data entry process and thereby reducing error. So far, the CAKN has PDA field data collection forms for stream and pond data and wolf surveys. Data collection forms for wolf captures and moose surveys are also planned. Field trials during the coming winter will test the utility of the PDAs to in extreme cold conditions.

There are other solutions for using handheld computers that the CAKN will be exploring in the coming year. Namely, the use of Pocket PC OS systems using SprintDBPro and/or abcDB database software. These systems offer a greater degree in development flexibility but are compromised by a longer development time and higher battery demands. In researching PDAs, it was difficult to identify Pocket PC units suitable for the rugged Alaskan conditions but new advances in battery life and extendibility offer hope that these can be successfully used in Alaska. In fact, the Denali LTEM program is successfully using Pocket PC units in the collection of small mammal inventory data during short field excursions. If you'd like to find out more about the CAKN's experience with using PDAs in the field, contact Doug Wilder (Doug_Wilder@nps.gov).

Central Alaska Network implementing field activity tracking website
A simple, web-based field schedule form was developed to allow easy tracking of field work in the CAKN. The form, accessible on an intranet, allows those scheduling field work to enter specifics about where and when field work is planned that is instantly saved to a server-based database and made available for all to see via another web page. The CAKN plans to update the scheduler to collect additional field work details and make the interface more user-friendly. For more information, contact Doug Wilder (Doug_Wilder@nps.gov).

Vital Sign Ranking in the Central Alaska Network
Using a Cold Fusion based web page, the CAKN recently completed a simple vital sign ranking exercise. A suite of 37 proposed vital signs were ranked within four categories (Physical, Habitat, Faunal, Vegetation) and summarized for range in the variation of the ranks. Weightings were applied based on (1) relevance to conceptual models (ecological and management), (2) presumed feasibility including cost, repeatability and variability of the vital sign, and (3) relevance to park concerns (logistics, cost, etc.). Ranks were entered via a secured area of the CAKN web page and saved to a database on the Ft. Collins server. Voters were allowed to rank the vital signs both within and between (overall) the categories. Using a password, the voters were able to enter and modify their ranks.

Discussion of the ranking exercise at an ensuing technical committee meeting revealed that there was wide discrepancy in the amount of time people spent on the ranking. Some people did the

within-category ranks very meticulously while others spent more time on the across category ranks. The technical committee felt that the within-category ranking was in general more reliable. Everyone was also in agreement that doing the overall (across categories) ranking of the 37 vital signs (comparing them all at once) was a bit overwhelming. The CAKN is using this initial ranking exercise as a way to generate more discussion on the final list of vital signs, not a means unto itself of determining the network's vital signs.

Special thanks to Glenda Jackson and Brian Witcher for help developing the site. And super special thanks to Dorothy Mortenson for helping make the ranking site a reality with Cold Fusion skills and a willingness to step in when Doug Wilder was suddenly unavailable due to the birth of his second daughter two days before the ranking was to begin. If you'd like a copy of the ranking site files, contact Doug Wilder (Doug_Wilder@nps.gov).

Remote Sensing in the Central Alaska Network

The CAKN is exploring the use of remote sensing technology for their monitoring program and plans to hold a workshop in November to iron out some of the issues surrounding this technology. Currently, the network is acquiring air photos (CIR, 1:40k) for Yukon-Charley and portions of Wrangell-St. Elias park units. Strong arguments, however, can be made for the use of satellite imagery in the vast areas that must be covered in the CAKN parks. You can read a comparison between aerial photography and QuickBird (a typical satellite imaging platform) at http://www.digitalglobe.com/downloads/QuickBird%20-%20Aerial%20Photography%20Comparison%20Report.pdf. QuickBird was contracted to image portions of Denali National Park this summer but satellite glitches are forcing a second attempt for next summer.

The North Coast and Cascades Network (spearheaded by Andrea Woodward, USGS Olympic Field Station) recently conducted a successful workshop and is now involved in an agreement to develop remote sensing protocols based on the recommendations that emerged from the workshop. Information on this effort is available on their website - http://fresc.usgs.gov/olympic/workshops/workshops.html. The CAKN plans to build off the experience of the North Coast and Cascades Network and shape their workshop around a preliminary list of vital signs recently determined for the CAKN. Contact: Doug Wilder (Doug_Wilder@nps.gov).

Data Mining Summary for Southwest Alaska Network (SWAN)

The SWAN Data Mining Summary contains some cheat sheets that might be helpful to the data managers:
http://science.nature.nps.gov/im/units/swan/Documents/Data_Management/SWANDataMiningReport_Sub.pdf Contact: Dorothy Mortenson (Dorothy_Mortenson@nps.gov).

Metadata Summary Reports for Southwest Alaska Network (SWAN)

The SWAN developed a metadata display tool that groups metadata records by subject: http://science.nature.nps.gov/im/units/swan/Metadata/metahome.htm. The utility includes a PDF version of the summary metadata report. Contact: Dorothy Mortenson (Dorothy_Mortenson@nps.gov).

San Francisco Bay Area Network (SFAN) Activities

Prior to transitioning into the Appalachian Highlands Network Data Manager position, Patrick Flaherty (formerly of Pinnacles NM) posted several new base Pinnacles layers to the GIS clearinghouse with more to follow. In addition, he presented an Extreme Fire Model using three

GIS themes at the national ESRI conference in San Diego and is working on two maps for the ESRI Map Book. A metadata and GIS data management plan was created for Pinnacles. And, a NR Database Template for lichen surveys is under development for SFAN. Contact: Patrick Flaherty (Patrick_Flaherty@nps.gov).

Meetings and Workshops

Vital Signs Monitoring Meeting of the Networks – August 2003
The I&M Program held its third annual Meeting of the Networks August 18-22, 2003 in Lansdowne, VA. Meeting presentations and proceedings are available at http://science.nature.nps.gov/im/monitor/meetings/WDC_03/wdc.htm.

FGDC Grant for Metadata Training – FY 2004
I&M received a metadata training grant from FGDC to support metadata training sessions in 2004. A session targeted to invasive/exotic plant researchers is planned for late fall in Fort Collins. Contact: Lisa Nelson (Lisa_L_Nelson@nps.gov).

Spatial Odyssey Biennial Conference – December 2003
The NPS Spatial Odyssey conference will be held December 1-5, 2003 in Orlando, FL. The conference includes presentations, posted and training sessions.

Data Manager's Workshop – Tentatively January 2004
A Natural Resource Data Manager's workshop is tentatively planned for January 2004. Location and dates are not set, but the workshop will be targeted at new I&M Data Managers. Contact: Lisa Nelson (Lisa_L_Nelson@nps.gov).

Annual I&M Data Manager's Meeting – Tentatively February 2004
The annual I&M Data Manager's Meeting is tentatively planned for February 2004. Locations under consideration include Las Vegas, NV; Portland, OR; Austin, TX; and Tampa, FL.